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### Abstract

The present invention relates to an active probe with a high aspect ratio tip and a fabrication method thereof, which is indispensable in developing a nano storage device using an SPM (Scanning Probe Microscopy) technology. An active probe with a high aspect ratio tip in accordance with the present invention includes: a frame; a cantilever a first terminal of which is supported by the frame; a tip having more than a predetermined aspect ratio, which is formed on a first surface of a second terminal of the cantilever; and an actuating layer for driving the cantilever, which is formed a second surface of the second terminal, the second surface opposing to the first surface of the second terminal. By forming the actuating layer on a surface opposing to a surface of the cantilever where the tip is formed, the tip having a large aspect ratio can be fabricated.